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From: Dave Dickerson/R1/USEPA/US

To: "Fredette, Thomas ERD" <Thomas.J.Fredette@usace.army.mil>

Delivered Date: 06/10/2010 11:58 AM EDT

Subject: RE: question from Coalition

thanks Tom - this looks very helpful

▼ "Fredette, Thomas ERD" ---06/10/2010 10:59:37 AM---Here is my initial, quick response. While it is unlikely that clams will burrow as deep as 100 cm (3

From: "Fredette, Thomas ERD" <Thomas.J.Fredette@usace.army.mil>

To: Dave Dickerson/R1/USEPA/US@EPA, William Nelson/NAR/USEPA/US@EPA, Barbara Bergen/NAR/USEPA/US@EPA

Cc: "Mackay, Joseph B NAE" <Joseph.B.Mackay@usace.army.mil>, ElaineT Stanley/R1/USEPA/US@EPA

Date: 06/10/2010 10:59 AM

Subject: RE: question from Coalition

Here is my initial, quick response.

While it is unlikely that clams will burrow as deep as 100 cm (3 feet), mere penetration of a cap would not be the real concern. The main concern is the actively mixed sediment depth. The actively mixed sediment depth is unlikely to be influenced much by rare, deep burrowers even if they were to occur. Only when such burrowers are common and therefore actively mixing substantial volumes of sediment towards the surface, would there be a basis for concern. However, it is clear that scientifically measured mixing depths are rarely greater than 30 cm and are typically much less. A world-wide review of marine benthic sediment mixing depths (Teal et al. 2008, attached) found that average global mixing depths were 5.75 ± 5.67 cm, with most reported values being less than 30 cm and the maximum reported value being about 50 cm. I am unaware of any information that would suggest the New Bedford region or the northeast is likely to depart from the observed data. Typical mixing depths in New England are in the 5-20 cm range based on my general knowledge.

Two of the most abundant marine clams in the northeast that might be of concern are the soft shelled clam (*Mya arenaria*) and the hard shell clam

(Mercenaria merceneria). Mya life history information indicates that 30 cm is the maximum burrowing depth and for Mercenaria it is much less. See attached species profiles and also the following links:

<http://www.issg.org/database/species/ecology.asp?si=1159&fr=1&sts=&lang=EN>

http://www.sms.si.edu/IRLSpec/Mercen_mercen.htm

Tom

-----Original Message-----

From: dickerson.dave@epamail.epa.gov [mailto:dickerson.dave@epamail.epa.gov]

Sent: Thursday, June 10, 2010 9:39 AM

To: Nelson.William@epamail.epa.gov; Bergen.Barbara@epamail.epa.gov; Fredette, Thomas ERD

Cc: Mackay, Joseph B NAE; stanley.elainet@epamail.epa.gov

Subject: question from Coalition

Hi - we've gotten the following question from the Coalition for Buzzards Bay (in regards to the lower harbor CAD cell proposal). Any information you might have to help answer it would be greatly appreciated (preferably by next Fri 6/18). Thanks - Dave

4. Data and/or reports that support the assertion that bivalve will not penetrate the 3 foot thick cap.

[attachment "Bioturbation Depth Review.pdf" deleted by Dave Dickerson/R1/USEPA/US]

[attachment "Mya arenaria species profile 82_11-068.pdf" deleted by Dave

Dickerson/R1/USEPA/US] [attachment "Mercenaria Species Profile 82_11-018.pdf" deleted by Dave Dickerson/R1/USEPA/US]